

Serial No. 10/784,199

Attorney Docket No. 15-046

REMARKS

Please consider the following comments. Following this response, claims 1-18 are pending. Applicant respectfully requests reconsideration and allowance of this application in view of the above amendments and the following remarks.

Claim Amendments

By this response Applicant has amended claim 1 to correct a minor error. In particular, when claim 1 was amended in the response dated February 16, 2007, it was changed to recite that the voltage comparator operates "for comparing a divided voltage at the divider node with a reference voltage." Thus, the voltage comparator is only connected indirectly to power source (i.e., through the first divider resistor). Therefore, in order to avoid any confusion about what is meant in claim 1, Applicant has amended claim 1 to recite that the voltage comparator is connected to the divider node, rather than the power source.

In addition, Applicant has amended claim 6 into independent form, incorporating the limitations of claim 1, including the correction noted above.

Because these amendments are being made solely to correct a minor error, and not in response to an art rejection, any narrowing amendment to the claims is not to be construed as a surrender of any subject matter between the original claims and the present claims; rather this is merely an attempt at providing one or more definitions of what the applicant believes to be suitable patent protection. The present claims provide the intended scope of protection that the applicant is seeking for this application. Therefore, no estoppel should be presumed, and the applicant's claims are intended to include a scope of protection under the Doctrine of Equivalents.

Serial No. 10/784,199

Attorney Docket No. 15-046

Rejections – 35 U.S.C. § 112

The Examiner has rejected claim 10 under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the enablement requirement. In particular, the Examiner alleges that the claim contains subject matter that was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or to which it is most nearly connected, to make and/or use the invention. Specifically, the Examiner asserts that the specification does not disclose that “the reference voltage is a variable voltage source” as recited in claim 10. Applicant respectfully traverses this rejection.

The Examiner notes that the paragraph on page 7, lines 12-15 of Applicant’s specification states that “[t]he predetermined voltage level at which the protecting switch SW is switched from ON to OFF or OFF to ON can be arbitrarily set by changing the divider resistors 53, 53 or the reference voltage Vos.” (This paragraph was amended in the response dated May 31, 2006, to correct a typographical error and refer to “the divider resistors 53, 54.”) But the Examiner contends that varying the value of the resistive divider cannot change the reference voltage. The Examiner also contends that the reference voltage is set by the value of the battery voltage, citing FIGs. 2-5.

With respect to the Examiner’s first contention, Applicant notes that the Examiner mischaracterizes what the cited paragraph states. This paragraph does not state that the reference voltage can be changed by changing the divider resistors. Rather, it notes that the predetermined voltage level at which the protecting switch SW is switched from ON to OFF or OFF to ON can be arbitrarily set by changing at least one of two properties: (1) the divider resistors 53, 54; or (2) the reference voltage Vos.

Serial No. 10/784,199

Attorney Docket No. 15-046

In other words, this paragraph does support that the predetermined voltage level for the switch SW can be changed by changing the reference voltage V_{os} . This paragraph, therefore, supports the fact that the reference voltage V_{os} can be variable.

With respect to the Examiner's second contention, Applicant respectfully disagrees with the Examiner's characterization of Applicant's disclosure. The Examiner appears to be conflating the battery 1 and the reference voltage source 52. The battery provides the power source voltage V_o , while the reference voltage source 52 provides the reference voltage V_{os} . Thus, the reference voltage V_{os} is not set by the value of the battery voltage V_o . Instead, it is generated by the reference voltage source 52, which, as Applicant notes above, can be a variable voltage source.

Thus, based on at least the reasons given above, Applicants submit that claim 10 is fully enabled and meets all of the requirements of 35 U.S.C. § 112, first paragraph. Applicant therefore respectfully requests that the Examiner withdraw the rejection of claim 10 under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the enablement requirement.

Rejections – 35 U.S.C. § 103

The Examiner has rejected claims 1-5, 7, and 9 under 35 U.S.C. § 103(a) as being allegedly unpatentable over United States Patent No. 3,428,820 to Lyon ("Lyon") in view of United States Patent No. 5,703,412 to Takemoto et al. ("Takemoto"). Applicant respectfully traverses this rejection. Furthermore, although the language of this rejection does not include claim 8, Applicant will respond with respect to claim 8, since the Examiner included claim 8 within the comments about the rejection.

Claim 1 (as amended above for clarity) recites, in part, a power source, a first divider resistor connected between the power source and a divider node; a second divider resistor

Serial No. 10/784,199

Attorney Docket No. 15-046

connected between the divider node and ground; and a voltage comparator connected to the divider node for comparing a divided voltage at the divider node with a reference voltage and for outputting a control signal when the divided voltage is higher than the reference voltage.

The Examiner asserts that the power source is shown by the unregulated power source 14 in Lyon; that the first and second divider resistors are shown by the potentiometer 48 in Lyon; and that the voltage comparator is shown by a combination of the over-voltage sensing Zener diode 58, the resistor 62, the resistor 64, and vertical NPN transistor connected to the base of the switch 52 in Lyon. The Examiner then cites Takemoto as allegedly teaching that the potentiometer could be replaced with a separate pair of divider resistors. However, a careful examination of Lyon and Takemoto will show that this is not an accurate characterization of what they show, and that neither Lyon nor Takemoto, alone or in combination, disclose every feature of claim 1.

As noted above, claim 1 recites more than just a voltage comparator in the abstract. Rather, it requires that the voltage comparator operate "for comparing a divided voltage at the divider node with a reference voltage and for outputting a control signal when the divided voltage is higher than the reference voltage." This feature is not shown in Lyon nor Takemoto, alone or in combination.

The combination of the over-voltage sensing Zener diode 58, the resistor 62, the resistor 64, and vertical NPN transistor connected to the base of the switch 52 in Lyon (which the Examiner asserts shows the voltage comparator) is formed within the over-voltage sensor and switch 18, between the switch 52 and ground. In contrast, the potentiometer 48 in Lyon (which the Examiner asserts shows the first and second divider resistors) is connected in the comparator 20 between the input line 22 and ground, parallel to the load. The contact point of the potentiometer (which Applicant presumes is what the Examiner believes reads on the recited

Serial No. 10/784,199

Attorney Docket No. 15-046

divider node) is connected to the base 36b of the transistor 36. And the circuit in Lyon does not compare the voltage at the base 36b of the transistor 36 with any kind of reference voltage.

Furthermore, since the circuit in Lyon does not show comparing a divided voltage at a divider node with a reference voltage, it likewise cannot show outputting a control signal when the divided voltage is higher than the reference voltage.

Thus, neither Lyon nor Takemoto, alone or in combination, disclose or suggest every feature recited in claim 1.

Applicant observes that some confusion may arise from the fact that in the rejection of claim 1, the Examiner has included canceled language from claim 1, i.e., that the recited comparator compares a voltage of the power source with a reference voltage. However, whether or not Lyon does or does not show this feature is irrelevant, since it is no longer recited in claim 1. Rather, the rejection should consider whether Lyon shows the recited comparator comparing a divided voltage of the divider node with a reference voltage.

Claims 2-5 and 7-9 depend from claim 1 and are allowable for at least the reasons given above for claim 1.

Therefore, for at least the reasons given above, Applicant respectfully requests that the Examiner withdraw the rejection of claims 1-5 and 7 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Takemoto in view of Lyon.

The Examiner has rejected claim 6 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Lyon, in view of Takemoto, and United States Patent No. 5,904,287 to Brkovic ("Brkovic").

Claim 6 depends from claim 1 and is allowable for at least the reasons given above for claim 1. Brkovic does not cure the deficiencies in Lyon and Takemoto noted above. In particular,

Serial No. 10/784,199

Attorney Docket No. 15-046

nothing in Brkovic discloses or suggests a voltage comparator for comparing a divided voltage at the divider node with a reference voltage, as recited in claim 1.

In addition, claim 6 recites a protecting switch disposed in a circuit between the power source and the electrical circuit, the protecting switch being turned off when the control signal is supplied from the voltage comparator to the protecting switch, thereby protecting the electrical circuit from overvoltage; a voltage booster for boosting the power source voltage to a predetermined voltage level, the voltage booster being disposed in a circuit connecting the power source and the electrical circuit; and that the protecting switch is disposed in the voltage booster,

Claim 6 further recites that the voltage booster comprises a booster coil, a booster switch for switching current flowing through the booster coil at a high speed, and a rectifying diode for allowing current to flow only in one direction from the booster coil to the electrical circuit, and that the protecting switch also functions as the rectifying diode.

The Examiner asserts that the transformer windings 820, 824, and 828 in Brkovic disclose the recited booster coil; that the power switches 830 and 834 in Brkovic disclose the recited booster switch; and that the synchronous rectifiers 840 and 844 in Brkovic disclose the recited rectifying diode. However, a careful examination of Brkovic will show that this is not a proper characterization of what it discloses.

Claim 6 requires that the booster switch operate to switch current flowing through the booster coil at a high speed. Nothing in Brkovic discloses that the power switches 830 and 834 are designed to be operated at high speed.

Furthermore, the Examiner has provided no reason why one skilled in the art would have combine the teachings of Brkovic with those of Lyon or Takemoto. Brkovic is controller for a synchronous rectifier that serves to protect an electrical load from an operation of a power

Serial No. 10/784,199

Attorney Docket No. 15-046

converter in its own transient state. (See, e.g., Brkovic, abstract.) During operation, the circuit of Brkovic actually serves to *reduce* the voltage, not boost it. In contrast claim 6 specifically recites a voltage booster for boosting the power source voltage to a predetermined voltage level, and further requires that the voltage booster includes a booster coil, booster switch, and rectifying diode.

The Examiner has asserted that it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the combination of Lyon and Takemoto by using the voltage converter with synchronous rectifiers according to the teachings of Brkovic, because of well-known advantages of the synchronous rectifiers, such as higher efficiency than the normal converter with rectifier diodes. Applicant traverses this characterization. A circuit for reducing voltage is not the same as a circuit for boosting voltage. And it would be improper for the Examiner to apply the teachings of a voltage reducer to a voltage booster.

If, however, the Examiner is relying on personal knowledge to support the finding of what is known in the art, then Applicant respectfully requests that the examiner provide an affidavit or declaration setting forth specific factual statements and explanation to support the finding as set forth in 37 CFR 1.104(d)(2), and MPEP 2144.03.

Therefore, for at least the reasons given above, Applicant respectfully requests that the Examiner withdraw the rejection of claim 6 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Takemoto in view of Lyon, and further in view of Brkovic.

New Claims

By this response, Applicant has added new claims 11-18, which depend from claim 6. No new matter has been added in these new claims. Applicant respectfully requests that the Examiner enter and consider these new claims. Support for these amendments can be found, for

Serial No. 10/784,199

Attorney Docket No. 15-046

example, in Applicant's originally-filed claims 2-5 and 7, and in Applicant's specification, on page 7, lines 12-16, and FIGs.2-5.

Conclusion

Applicant respectfully submits that, as described above, the cited prior art does not show or suggest the combination of features recited in the claims. Applicant does not concede that the cited prior art shows any of the elements recited in the claims. However, applicant has provided specific examples of elements in the claims that are clearly not present in the cited prior art.

Applicant strongly emphasizes that one reviewing the prosecution history should not interpret any of the examples Applicant has described herein in connection with distinguishing over the prior art as limiting to those specific features in isolation. Rather, for the sake of simplicity, Applicant has provided examples of why the claims described above are distinguishable over the cited prior art.

In view of the foregoing, Applicant submits that this application is in condition for allowance. A timely notice to that effect is respectfully requested. If questions relating to patentability remain, the Examiner is invited to contact the undersigned by telephone.

Serial No. 10/784,199

Attorney Docket No. 15-046

Although it is not anticipated that any additional fees are due or payable, the Commissioner is hereby authorized to charge any fees that may be required to Deposit Account No. 50-1147.

Respectfully submitted,



Brian C. Altmiller

Reg. No. 37,701

Posz Law Group, PLC
12040 South Lakes Drive, Suite 101
Reston, VA 20191
Phone 703-707-9110
Fax 703-707-9112
Customer No. 23400